



# WASHINGTON DEPARTMENT OF FISH AND WILDLIFE

## LUHR CREEK CULVERT REPLACEMENT PROJECT CONTRACT 100-000239

### INDEX

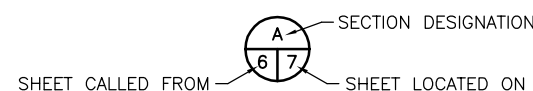
#### SHEET NO.

1. COVER SHEET
2. SITE PLAN - NOTES AND SPECIFICATIONS
3. STREAM PROFILE
4. SECTIONS

### SHEET SYMBOLS



#### DETAIL



#### SECTION



#### NOTE REFERENCE

REFERENCE DESIGNATION TO NOTE  
APPEARING ON SAME SHEET OR A  
PART OR MATERIAL IN A SCHEDULE



Reference: ESRI Street Maps.

#### LOCATION MAP

SCALE: NTS



Reference: ESRI Street Maps.

#### VICINITY MAP

SCALE: 1"=4000'

# 50% DRAFT SET

PROJECT NO. 3730-138-00	
SHEET	OF
1	4

GENERAL NOTES:

1. THESE DESIGNS AND DRAWINGS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF THE WASHINGTON STATE DEPARTMENT OF FISH AND WILDLIFE. NO OTHER PARTY CAN RELY ON THE PRODUCT OF OUR SERVICES UNLESS GEOENGINEERS INC. (GEOENGINEERS) AGREES IN WRITING IN ADVANCE OF SUCH USE.
2. THE DRAWINGS CONTAINED WITHIN SHOULD NOT BE UTILIZED FOR ANY PURPOSE OR PROJECT EXCEPT THE ONE SPECIFIED WITHIN THESE PLANS.
3. THESE DESIGNS AND DRAWINGS ARE COPYRIGHTED BY GEOENGINEERS, INC. ANY USE, ALTERATION, DELETION OR EDITING OF THESE DOCUMENTS WITHOUT EXPLICIT WRITTEN PERMISSION FROM GEOENGINEERS IS STRICTLY PROHIBITED. ANY OTHER UNAUTHORIZED USE OF THIS DOCUMENT IS PROHIBITED.
4. THE DESIGNS DEPICTED HEREIN ARE APPROXIMATE AND ARE INTENDED TO EXPRESS THE OVERALL DESIGN INTENT OF THE PROJECT. THESE DESIGNS WILL NEED TO BE ADJUSTED IN THE FIELD DURING CONSTRUCTION IN ORDER TO MEET THE SPECIFIC SITE CONDITIONS AND INTENDED FUNCTION.
5. THESE IMPROVEMENTS HAVE BEEN DEVELOPED WITH THE UNDERSTANDING THAT A QUALIFIED ENGINEER AND/OR SCIENTIST WILL BE ON-SITE TO PROVIDE CONSTRUCTION GUIDANCE WHILE THE STREAM ENHANCEMENTS ARE CONSTRUCTED TO ENSURE THE OVERALL INTENT OF THE DESIGN IS ACHIEVED.
6. GEOMORPHIC CONDITIONS CAN CHANGE AND THESE DESIGNS ARE BASED ON CONDITIONS THAT EXISTED AT THE TIME THE DESIGN WAS PERFORMED. THE RESULTS OF THESE DESIGNS MAY BE AFFECTED BY THE PASSAGE OF TIME, BY MANMADE EVENTS SUCH AS CONSTRUCTION ON OR ADJACENT TO THE SITE, OR BY NATURAL EVENTS SUCH AS FLOODS, EARTHQUAKES, SLOPE INSTABILITY OR GROUNDWATER FLUCTUATIONS. CONTACT GEOENGINEERS BEFORE APPLYING THESE DESIGNS TO DETERMINE IF THEY REMAIN APPLICABLE.
7. IN GENERAL, THE PROPOSED ENHANCEMENTS ARE INTENDED TO RESULT IN A MORE COMPLEX CHANNEL, WHILE INCREASING BED, BANK AND FLOODPLAIN STABILITY AS WELL AS FLOODPLAIN HABITAT. HOWEVER, AS WITH ALL NATURAL STREAM SYSTEMS, SOME CHANNEL EROSION AND MIGRATION MAY BE EXPECTED TO OCCUR OVER TIME. THESE CHANNEL PROCESSES ARE NATURAL AND APPROPRIATE FOR THESE STREAM SYSTEMS.

CONSTRUCTION NOTES:

1. ALL CONTRACTORS WORKING WITHIN THE PROJECT BOUNDARIES ARE RESPONSIBLE FOR COMPLIANCE WITH ALL APPLICABLE SAFETY LAWS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL BARRICADES, SAFETY DEVICES AND CONTROL OF TRAFFIC WITHIN AND AROUND THE CONSTRUCTION AREA.
2. ALL MATERIAL AND WORKMANSHIP FURNISHED ON OR FOR THE PROJECT MUST MEET THE MINIMUM REQUIREMENTS OF PROJECT PERMITS, APPROVING AGENCIES, TECHNICAL SPECIFICATIONS AS SET FORTH HEREIN, OR WHICHEVER IS MORE RESTRICTIVE.
3. CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS PRIOR TO ANY DEWATERING AND/OR WATER DIVERSION ACTIVITIES ON SITE.
4. THE CONTRACTOR SHALL INSTALL AND MAINTAIN APPROPRIATE SEDIMENT CONTROL DEVICES THROUGHOUT THE WHOLE PROJECT SITE, INCLUDING ANY CONSTRUCTION STAGING AREA AND STOCKPILE AREA THROUGHOUT THE PROJECT'S CONSTRUCTION. TEMPORARY CONSTRUCTION AND PERMANENT EROSION CONTROL MEASURES SHALL BE DESIGNED, CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS. CONTRACTOR SHALL COMPLY WITH ALL PERMIT REQUIREMENTS.
5. ANY IN-STREAM CONSTRUCTION SHALL OCCUR DURING THE IN-STREAM WORK WINDOW FOR THE PROJECT AREA AND/OR DURING PERIODS OF LOW FLOW THROUGH THE PROJECT SITE AS APPROVED BY THE PERMITTING AGENCIES.
6. CONSTRUCTION SHALL OCCUR IN A MANNER THAT SATISFIES ALL STATE AND FEDERAL STANDARDS AND PROJECT PERMIT REQUIREMENTS FOR CONTAMINANTS AND TURBIDITY.
7. CONSTRUCTION SHALL MINIMIZE DISTURBANCE TO, AND MAXIMIZE REUSE OF, EXISTING RIPARIAN VEGETATION.
8. ALL MATERIAL NOT USED ON-SITE SHALL BE DISPOSED OF ON-SITE AS DIRECTED BY THE WASHINGTON STATE DEPARTMENT OF FISH AND WILDLIFE OR SHALL BE HAULED OFFSITE AND PROPERLY DISPOSED OF LEGALLY.
9. CONTRACTOR TO REMOVE UNSUITABLE AND DELETERIOUS MATERIAL FROM CLEARING AND GRUBBING ACTIVITIES AND EXCAVATIONS.
10. THE CONTRACTOR SHALL RETURN DISTURBED AREAS ON ANY ACCESS ROUTE BACK TO THEIR ORIGINAL CONDITION AND/OR BETTER UPON COMPLETION OF THE PROJECT.
11. SAWCUT AND REMOVE REINFORCED CONCRETE BULKHEAD/WALL AS NEEDED FOR INSTALLATION OF CULVERT.

STREAMBED CHANNEL NOTES:

1. DESIGNS SHOWN ARE APPROXIMATE AND ARE INTENDED TO BE CONSTRUCTED UNDER THE DIRECT SUPERVISION OF THE OWNER OR THE OWNER'S AUTHORIZED AGENT.
2. STREAMBED MATERIAL PLACEMENT SHALL BEGIN AT THE DOWNSTREAM END AND CONTINUE UPSTREAM.
3. THE VOIDS IN AND AROUND THE STREAMBED COBBLES SHALL BE FILLED AND COMPACTED WITH STREAMBED SEDIMENT TO PREVENT SEEPAGE OF WATER THROUGH THE NEWLY PLACED COBBLES MATERIAL. THE INSTALLED BOULDER AND STREAMBED MATERIAL SHALL BE TESTED TO CHECK THAT SEEPAGE IS NEGLIGIBLE PRIOR TO INTRODUCTION OF ACTIVE STREAM FLOW.
4. IT IS ANTICIPATED THAT WITH THE REMOVAL OF THE CONCRETE FLUME, CHANNEL EROSION, HEAD CUTTING AND/OR MIGRATION WILL OCCUR. THIS A NORMAL PROCESS WHEN REMOVING A LONGSTANDING GRADE CONTROL.
5. THE OWNER OR THE OWNER'S AUTHORIZED AGENT SHALL APPROVE CONSTRUCTION PRIOR TO DEMOBILIZATION.

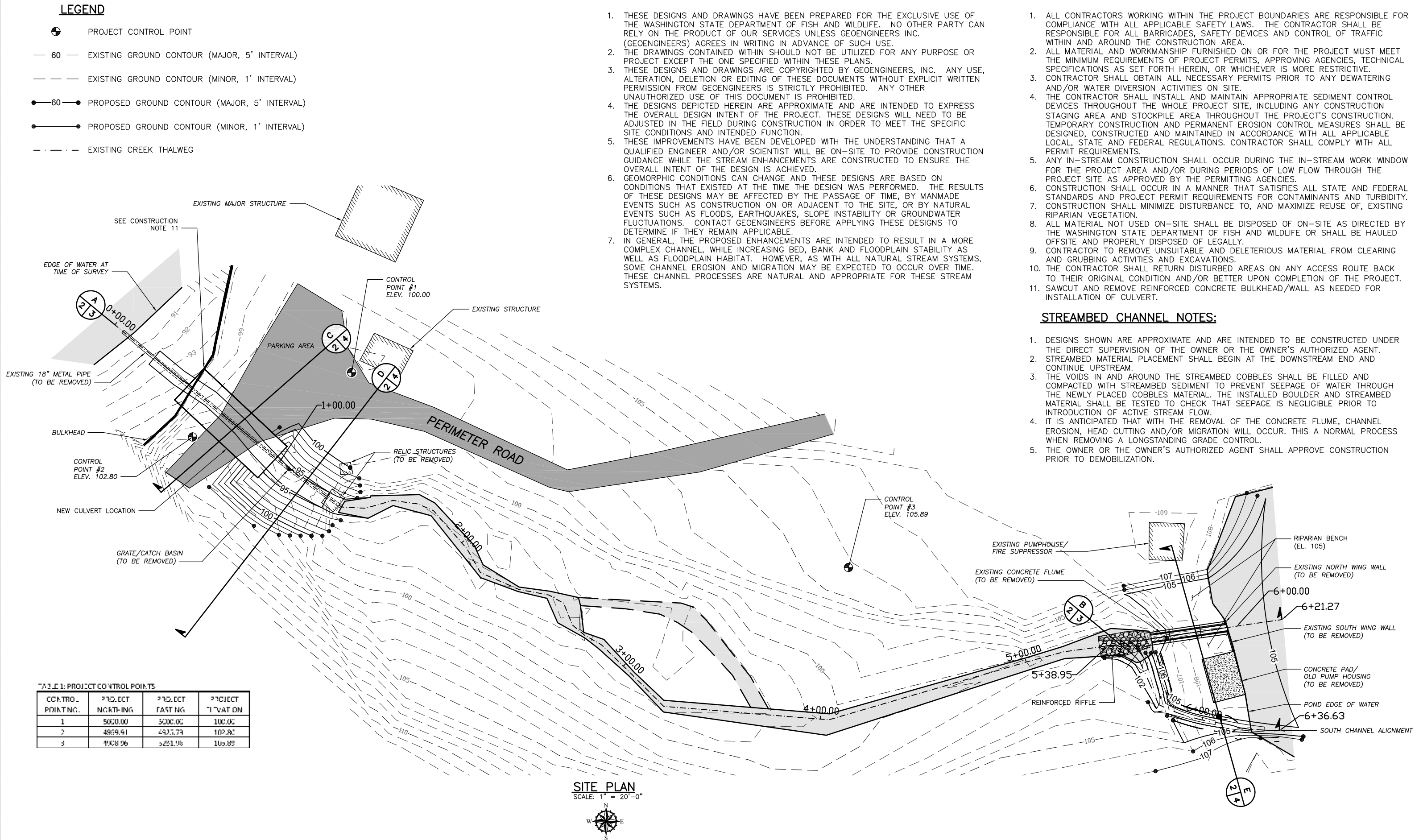
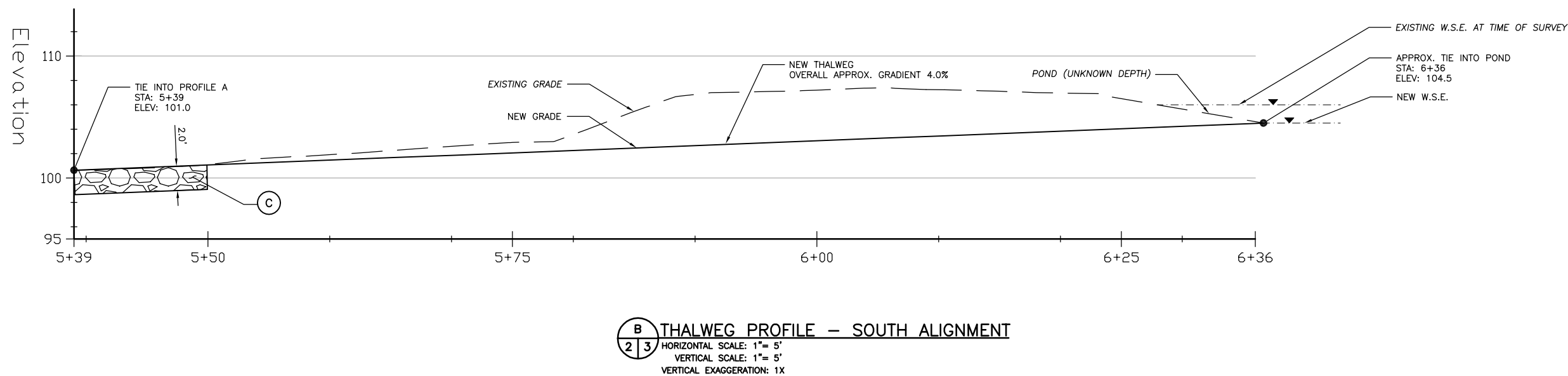
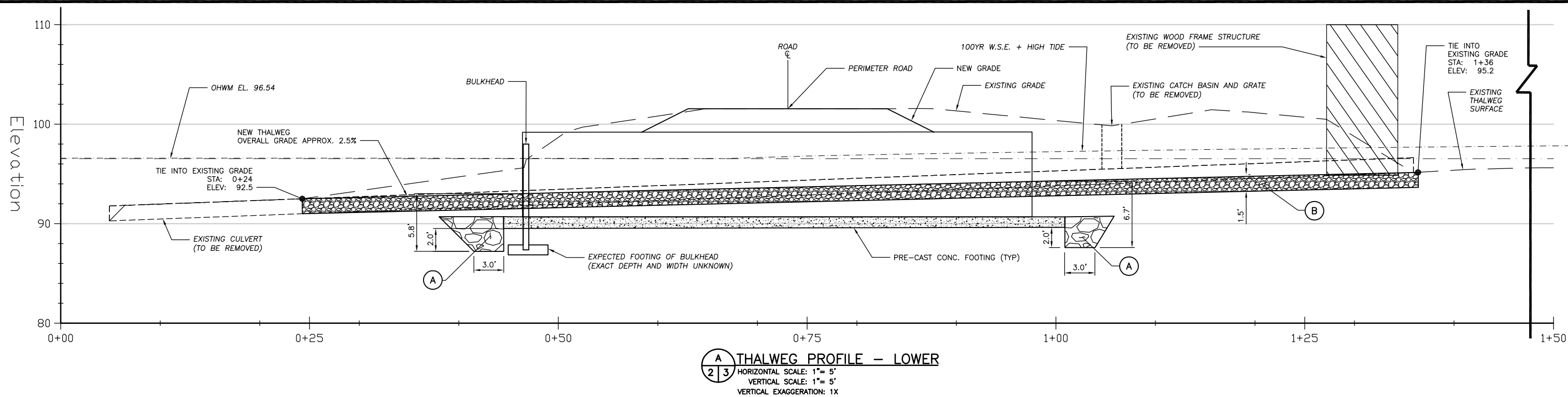


TABLE 1: PROJECT CONTROL POINTS

CONTROL POINT NO.	PROJECT ELEVATION	PROJECT ELEVATION	PROJECT ELEVATION
1	5020.00	5000.00	100.00
2	4959.51	4977.73	102.80
3	4938.06	4921.16	105.89





#### LEGEND

- (A) LIGHT LOOSE RIPRAP
- (B) IMPORTED STREAMBED MATERIAL (SPECIFICATIONS SIZE TO BE DETERMINED)
- (C) REINFORCED RIFFLE (SPECIFICATIONS SIZE TO BE DETERMINED)

#### NOTES:

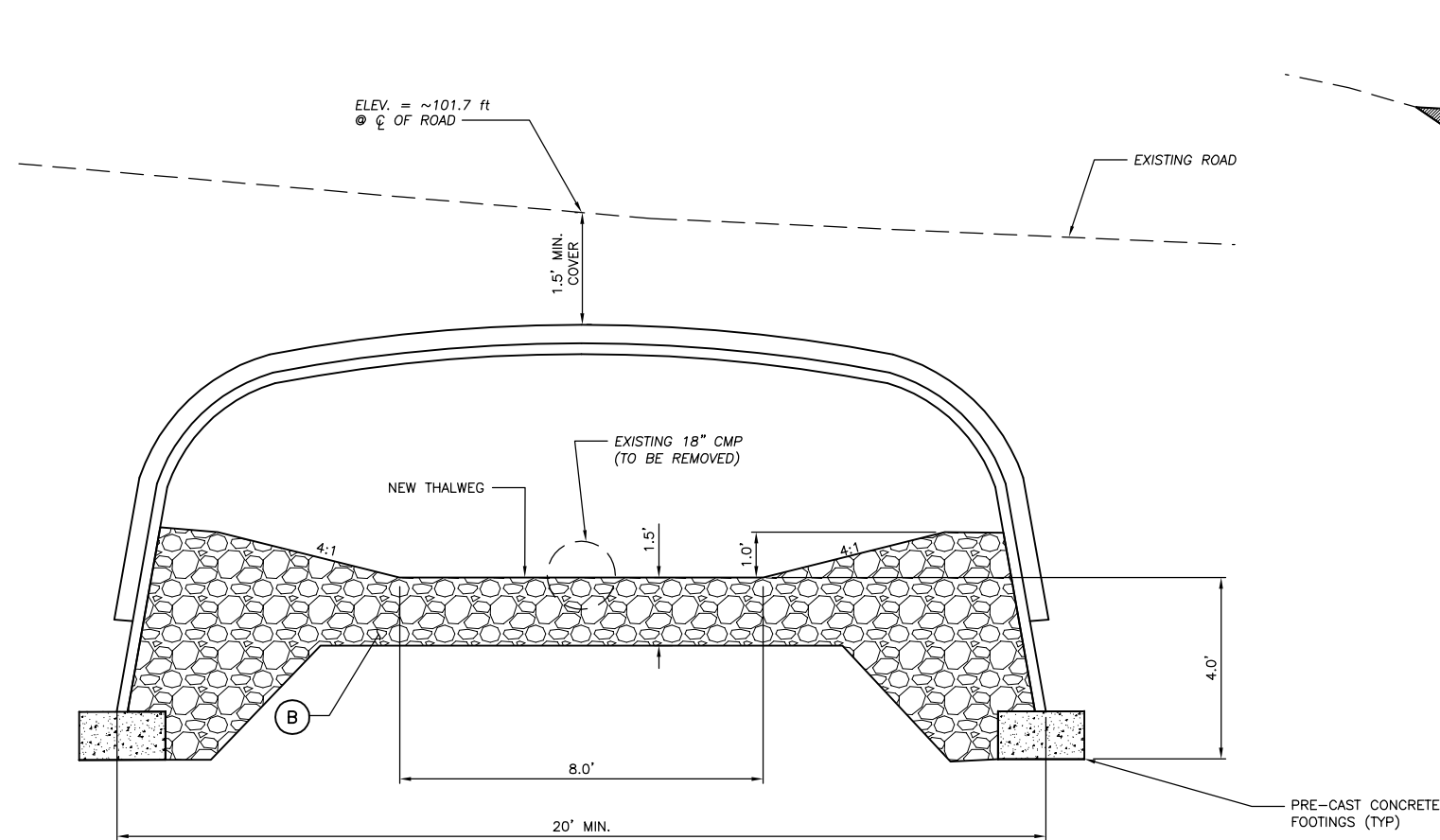
1. CULVERTS AND FOOTINGS TO BE CONTRACTOR DESIGNED AND INSTALLED AS PART OF THIS CONTRACT.
2. RIPRAP TRENCH TO EXTEND ACROSS FACE OF CULVERT.

**WASHINGTON STATE**  
**DEPARTMENT OF FISH AND WILDLIFE**

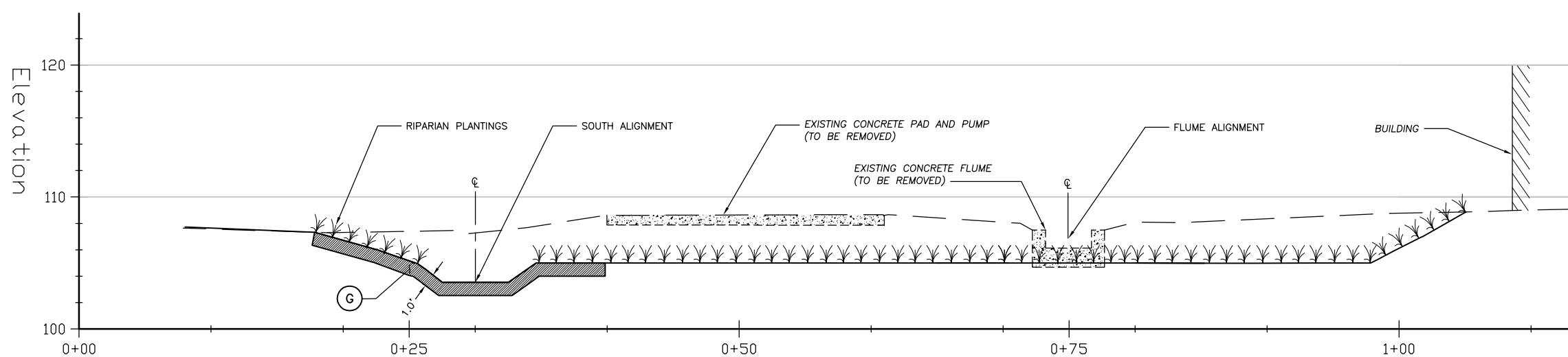
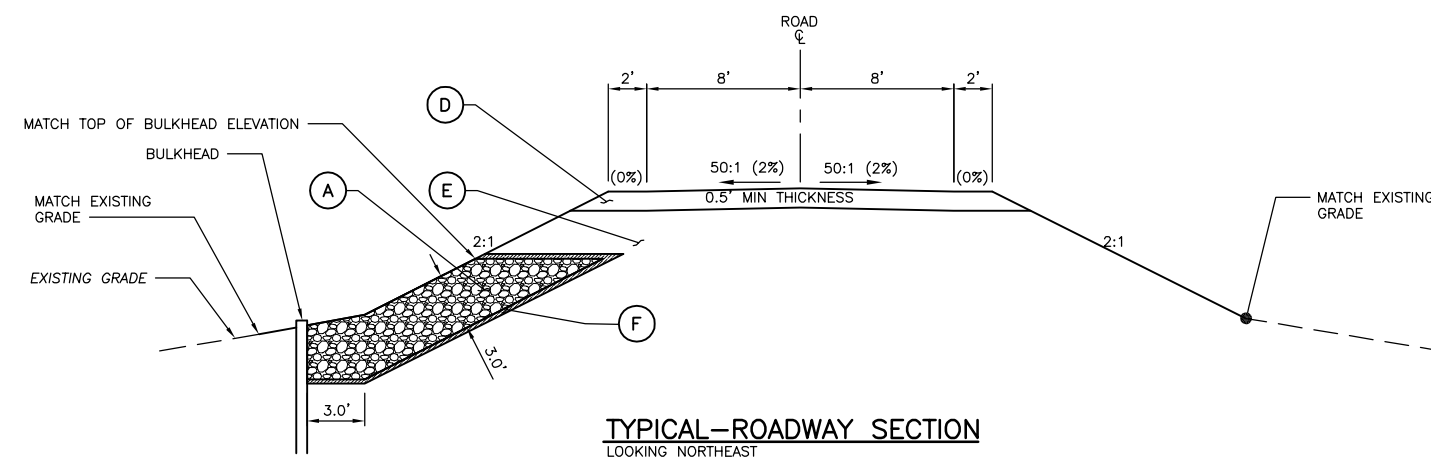
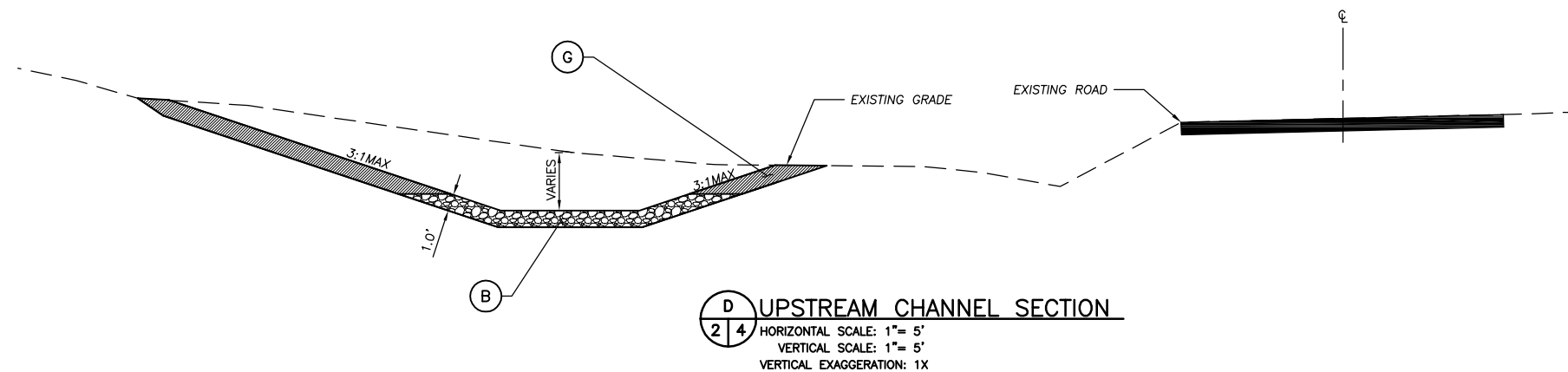
				0 ————— 1"	
				BAR MEASURES ONE INCH ON ORIGINAL DRAWINGS	
SYM	DATE	REVISION DESCRIPTION		BY	
APPROVED AND RELEASED FOR CONSTRUCTION					
CHIEF ENGINEER .....				DATE: .....	
PROGRAM .....				DATE: .....	
				DESIGNED BY J. AMBROSE/G.N	
				CHECKED BY W. WRIGHT	
				DRAWN BY T. MICHAUD	
				DATE 12/18/2012	

**LUHR CREEK**  
**CULVERT REPLACEMENT PROJECT**  
 STREAM PROFILE

PROJECT NO.  
**3730-138-00**  
 SHEET **3** OF **4**



**C CULVERT CHANNEL SECTION**  
 2 | 4 LOOKING DOWNSTREAM  
 HORIZONTAL SCALE: 1" = 2'  
 VERTICAL SCALE: 1" = 2'  
 VERTICAL EXAGGERATION: 1X



**E RIPARIAN BENCH SECTION**  
 2 | 4 HORIZONTAL SCALE: 1" = 5'  
 VERTICAL SCALE: 1" = 5'  
 VERTICAL EXAGGERATION: 1X

**LEGEND**

- (A) LIGHT LOOSE RIPRAP
- (B) IMPORTED STREAMBED MATERIAL
- (D) 1-1/4 INCH MINUS CRUSHED ROCK
- (E) SELECT BORROW
- (F) GEOTEXTILE FABRIC
- (G) NATIVE TOPSOIL

**NOTES:**

1. CULVERTS AND FOOTINGS TO BE CONTRACTOR DESIGNED AND INSTALLED AS PART OF THIS CONTRACT.
2. STREAM BED BOULDERS TO BE BUIRED 1/2 DEPTH.
3. MINIMUM ROADWAY DIMENSIONS ARE COMPACTED DEPTHS.

**WASHINGTON STATE**  
**DEPARTMENT OF FISH AND WILDLIFE**

SYM	DATE	REVISION DESCRIPTION	BY
APPROVED AND RELEASED FOR CONSTRUCTION			
CHIEF ENGINEER	DATE	DESIGNED BY J. AMBROSE/G.NG	CHECKED BY W. WRIGHT
PROGRAM	DATE	DRAWN BY T. MICHAUD	DATE 12/18/2012

LUHR CREEK		PROJECT NO. 3730-138-00	
CULVERT REPLACEMENT PROJECT		SHEET 4	OF 4
SECTIONS			